

AMENDMENTS TO THE CLAIMS

Claim 1 (Currently amended): A method for preparing a hydrogen generation reactor chamber to reduce coking, the method comprising:

applying a cold spray of an alkaline oxide or oxides doped with alkali or alkaline earth metals, mixed with ~~small quantity of metal to principal~~ at least one surfaces within the chamber; and

depositing a catalyst on a support structure in the reactor chamber, the support structure comprising at least one of metal foams, ceramic monoliths, foams, or mesochannels.

Claim 2 (Original): The method of claim 1 wherein the metal is selected from the group consisting of noble metals and alkaline metals.

Claim 3 (Original): The method of claim 1 wherein the percentage of metal to alkaline oxide in the cold spray is about 50% to about 90%, respectively.

Claim 4 (Original): The method of claim 1 wherein said hydrogen generation reactor chamber is comprised of at least one of aluminum, stainless steel, titanium and high temperature refractory alloys suitable for hydrogen generation.

Claim 5 (Original): The method of claim 1 wherein said hydrogen generation reactor chamber is further comprised of at least one port having a tube.

Claim 6 (Currently amended): The method of claim 5 further comprising a step of applying a cold spray of an alkaline oxide ~~mixed~~ or oxides doped with alkali metal or alkaline earth metals, mixed with ~~small quantity of metal to a surface of said tube, said application to said tube occurring either during said application of said a cold spray to principal surfaces within the chamber or during a separate applying step.~~

Claim 7 (Original): The method of claim 6 wherein said applying step is directed to at least an inner surface of said tube.

Claim 8 (Original): The method of claim 6 wherein said applying step is directed to at least an outer surface of said tube.

Claim 9 (Original): The method of claim 6 wherein said tube protrudes into said hydrogen generation reactor chamber.

Claim 10 (Canceled)

Claim 11 (Original): The method of claim 1 wherein said hydrogen generation reactor chamber has a cover, said cover having applied thereto a cold spray of an alkaline oxide mixed with small quantity of metal.

Claim 12 (Original): The method of claim 11 wherein said cover also has a hydrogen separation membrane incorporated therein.

Claim 13 (Original): The method of claim 10, wherein said mesochannels have a width of about 0.3 mm to 2.5 mm.

Claim 14 (Original): The method of claim 10, wherein said mesochannels have a width of about the 0.5 mm to about 2.0 mm.

Claim 15 (Original): The method of claim 1, wherein said cold spray is applied to leave portions of said hydrogen generation reactor chamber uncoated for joining operations.

Claim 16 (Currently amended): The method of claim ~~14~~ 15, wherein said joining operations comprise at least one of welding, brazing or diffusion bonding.

Claim 17 (Original): The method of claim 1, further comprising applying said cold spray to any protrusion into said hydrogen generation reactor chamber.

Claim 18 (Original): The method of claim 17, wherein said protrusions is at least one of tubings, thermowells and wells for sensor probes.

Claim 19 (Canceled)

Claim 20 (Canceled)

Claim 21 (Original): The method of claim 1 wherein said hydrogen generation reactor chamber is tubular.

Claim 22 (Original): The method of claim 21 wherein said tubular hydrogen generation reactor chamber has covers or end-caps that contain one or more tubes.